

### Claims

1. A head drum assembly of a tape recorder, comprising:  
a shaft;  
a rotary drum which supports a magnetic head for recording and reproducing  
5 information by scanning a running magnetic tape;  
a fixed drum, press-fitted onto a lower part of the shaft, engaged on an axial  
bore of the rotary drum, parallel to the rotary drum;  
an upper bearing and a lower bearing, provided one on the other between the  
rotary drum and the shaft; and  
10 preloading means for applying preload to the upper and lower bearings.
2. The head drum assembly of a tape recorder according to claim 1, wherein the  
upper and lower bearings each comprise an inner race, and wherein the preloading  
means comprises an elastic body mounted on the circumferential surface of the shaft  
15 and interposed between the upper and lower bearings to elastically bias and compress  
each of the inner races of the upper and lower bearings.
3. The head drum assembly of a tape recorder according to claim 2, wherein the  
elastic body comprises a spring.  
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4. A head drum assembly of a tape recorder, comprising:  
a shaft;  
a rotary drum which supports a magnetic head for recording and reproducing  
information by scanning a running magnetic tape;  
25 a fixed drum, press-fitted onto a lower part of the shaft, engaged on an axial  
bore of the rotary drum, parallel to the rotary drum;  
an upper bearing and a lower bearing, provided one on the other between the  
rotary drum and the shaft; and  
a preload apparatus which applies a preload to the upper and lower bearings.  
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5. The head drum assembly of a tape recorder according to claim 4, wherein the  
upper and lower bearings each comprises an inner race, and wherein the preloading

apparatus comprises an elastic body mounted on the circumferential surface of the shaft and interposed between the upper and lower bearings to elastically bias and compress each of the inner races of the upper and lower bearings.

5 6. The head drum assembly of a tape recorder according to claim 5, wherein the elastic body comprises a spring.

7. The head drum assembly of a tape recorder according to claim 4, wherein the rotary drum further comprises an upper recess for accepting the upper bearing and a  
10 lower recess for accepting the lower bearing.

8. The head drum assembly of a tape recorder according to claim 4, wherein the preload is applied to the inner race of the upper bearing in an upward direction,

15 9. The head drum assembly of a tape recorder according to claim 4, wherein the preload is applied to the inner race of the lower bearing in a downward direction.

10. The head drum assembly of a tape recorder according to claim 4, further comprising a fixed drum pressure fitted onto the shaft.

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11. A method for fabricating a head drum assembly of a tape recorder, comprising:  
press fitting an upper bearing into an upper recess of a rotary drum, which supports a magnetic head for recording and reproducing information by scanning a running magnetic tape;

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press fitting a shaft through the upper bearing;

inserting preloading means around the shaft adjacent to a lower surface of the upper bearing;

press fitting a lower bearing around the shaft into a lower recess of the rotary drum, such that the preloading means is elastically biased against the upper and lower

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bearings; and

press fitting a fixed drum around the shaft, lower bearing and rotating drum.

12. The method according to claim 11, wherein the preload means comprises a spring.
13. The method according to claim 11, wherein the preload is applied to an inner  
5 race of the upper bearing in an upward direction, and the preload is applied to an inner race of the lower bearing in a downward direction.
14. A method for fabricating a head drum assembly of a tape recorder, comprising:  
press fitting an upper bearing into an upper recess of a rotary drum, which  
10 supports a magnetic head for recording and reproducing information by scanning a running magnetic tape;  
press fitting a shaft through the upper bearing;  
inserting a preloading apparatus around the shaft adjacent to a lower surface of the upper bearing;  
15 press fitting a lower bearing around the shaft into a lower recess of the rotary drum, such that the preloading means is elastically biased against the upper and lower bearings; and  
press fitting a fixed drum around the shaft, lower bearing and rotating drum.
- 20 15. The method according to claim 14, wherein the preload apparatus comprises a spring.
16. The method according to claim 14, wherein the preload is applied to an inner  
race of the upper bearing in an upward direction, and the preload is applied to an inner  
25 race of the lower bearing in a downward direction.